

Service Manual

Mini Cassette

RQ-335

(Black Face)

AC/Battery Mini Cassette Recorder Features Tape Counter,
Full Auto-Stop, Cue and Review Controls



This is the Service Manual for the following areas.

- For All European areas except United Kingdom.
(Non-Included AC Adaptor Type)
- For All European areas except United Kingdom.
(Included AC Adaptor Type)
- For Asia, Latin America, Middle East and Africa, areas.

RQ-335 MECHANISM SERIES

Specifications

Power requirement:

- Battery; 6V (four R6 size dry batteries)
AC; with optional AC adaptor RP-667
- Battery; 6V (four R6 size dry batteries)
AC; with included AC adaptor RP-667
- Battery; 6V (four UM-3 size dry batteries)
Car/boat battery; with optional car/boat adaptor
RP-917

Motor: Electrical governor motor

Power output: 600mW ... RMS (max.)

Frequency range: 70-10,000Hz

Recording system: AC bias

Operation: Push button one-touch recording with full auto-stop mechanism

Tape speed:	4.8 cm/s
Program time:	1 hour with C-60 cassette tape
Fast forward and rewind time:	Approx. 140 seconds with C-60 cassette tape
Track system:	2-track monaural recording and playback
Input:	MIC; sensitivity 0.25mV/applicable microphone impedance 200-600Ω
	DC IN; 6V
Output:	Monitor; 8Ω
	Remote; for start and stop/tat hand
Speaker:	5cm PM dynamic speaker
Dimensions:	9.7cm(W) × 15.8cm(H) × 3.8cm(D)
Weight:	530g, without batteries

Specifications are subject to change without notice.

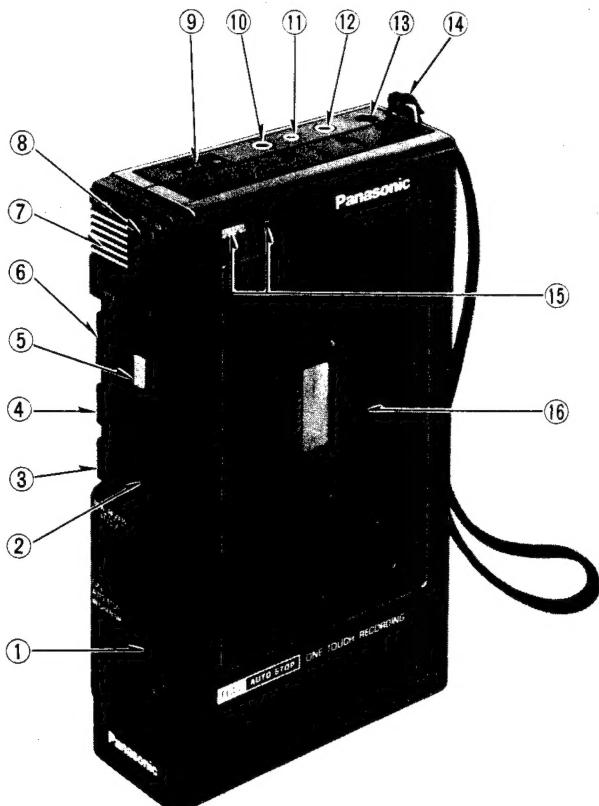
 National /  Panasonic

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P.O. Box 288, Central Osaka Japan

CONTENTS

ITEM	PAGE
LOCATION OF CONTROLS AND COMPONENTS.....	1
DISASSEMBLY INSTRUCTIONS.....	2,3
ASSEMBLY INSTRUCTIONS.....	3
MEASUREMENT AND ADJUSTMENT METHODS	4
ELECTRICAL PARTS LOCATION	4
SCHEMATIC DIAGRAM	5
WIRING CONNECTION DIAGRAM	6
EXPLODED VIEWS	7,8
MECHANICAL PARTS LOCATION	9
CABINET PARTS	9

LOCATION OF CONTROLS AND COMPONENTS



- ① Pause/eject button
- ② Playback button
- ③ Fast forward/cue button
- ④ Rewind/review button
- ⑤ Record button
- ⑥ Stop button
- ⑦ Built-in microphone
- ⑧ Recording-indicator /battery-check lamp
- ⑨ Volume control
- ⑩ External microphone jack
- ⑪ Remote control jack
- ⑫ Monitor jack
- ⑬ External power adaptor jack
- ⑭ Handstrap
- ⑮ Tape counter and reset button
- ⑯ Cassette compartment cover

Fig. 1

DISASSEMBLY INSTRUCTIONS

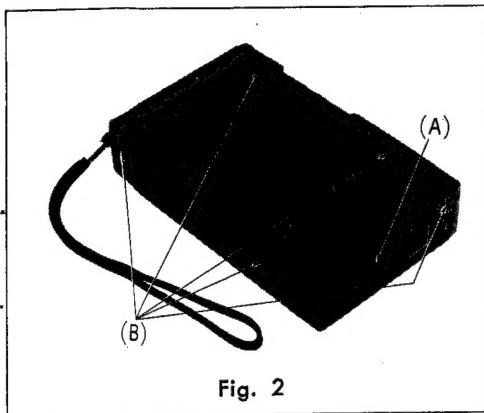


Fig. 2

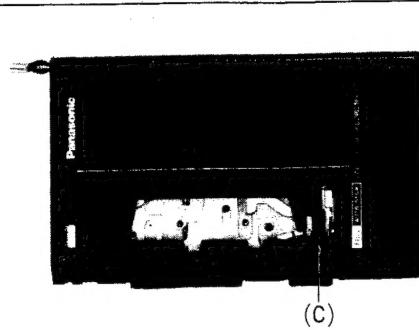


Fig. 3

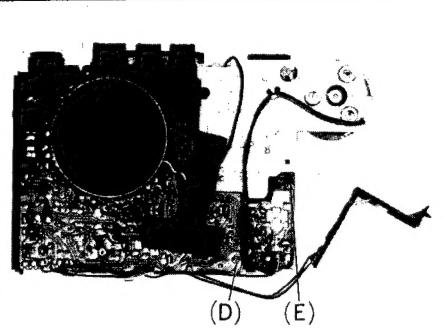


Fig. 4

Procedure	To remove —	Remove —	Shown in fig. —
1	Bottom case assembly	• Battery case.....(A) • 5 black screws.....(B)	2 2
2	Main case assembly and front panel assembly	• 1 black screw(C)	3
3	Main circuit board and motor speed control circuit board	• 1 screw(D) • 1 black screw(E)	4 4

MECHANISM SECTION

Removing the upper base plate assembly

1. Remove the fast forward/rewind lever spring (M20) (shown in fig. 5).
2. Remove the snap washer (M30) from the supply reel table assembly (M29), the supply reel table assembly and counter belt (M28) in that order.
3. Remove pause rod guide-B (M40) (shown in fig. 5).
4. The removal of 5 screws (a) allows the upper base plate assembly (M34) to come off (shown in fig. 5, 7).

NOTE:

Parts (b), (c), (d), (e), (f) and (g) shown in fig. 6 tend to come off when the mechanism is disassembled. Be careful not to lose them (shown in fig. 6).

(Be sure to disassemble the mechanism using care for the positions of these parts so that they can be properly reassembled.)

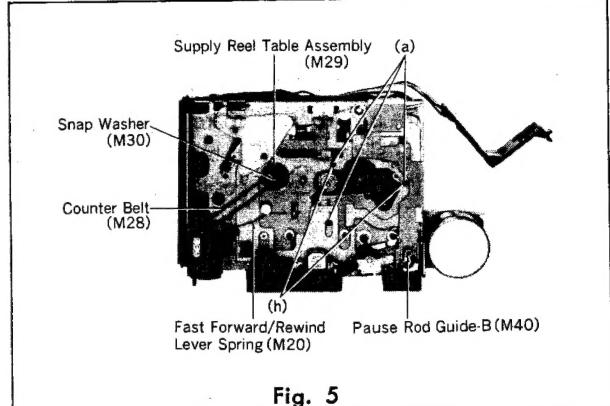


Fig. 5

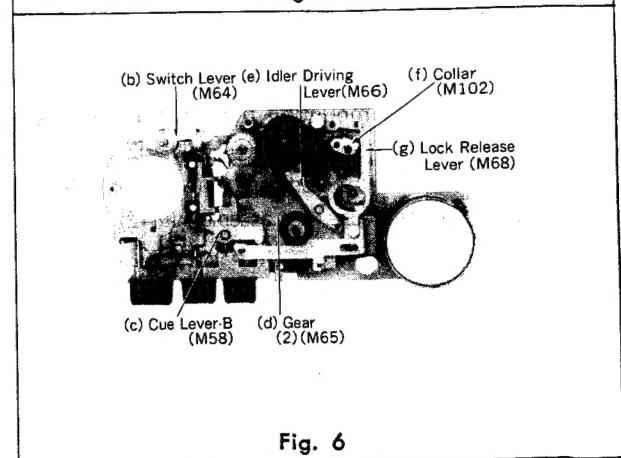


Fig. 6

Removing the lower base plate assembly and replacing the flywheel belt

1. Remove the pause lock spring (M101) (shown in fig. 7).
2. The removal of 4 screws (h) allows the lower base plate assembly (M90) to come off (shown in fig. 5, 7).
3. The removal of screw (i) for mounting the motor allows the flywheel belt (M93) to come off (shown in fig. 7).

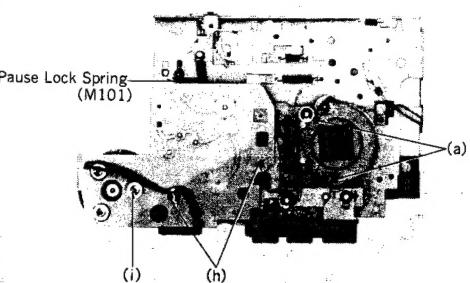


Fig. 7

ASSEMBLY INSTRUCTIONS

1. Precautions when mounting the lower base plate assembly

- * Mount the takeup reel table assembly (M71) so that auto-stop detection lever-A (M69) matches flat surface (a) on the rear of the assembly, as shown in fig. 8.

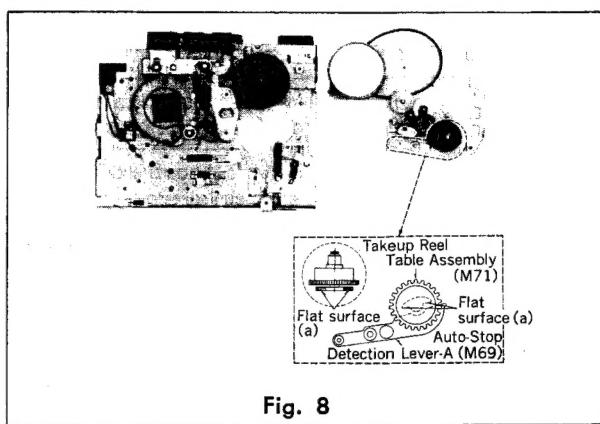


Fig. 8

2. Precautions when mounting the printed circuit board

- * When mounting the printed circuit board on the mechanism unit, check that the part (c) of slide switch (S1) between the record switch rods A (M35) and B (M36) is properly positioned, as shown in fig. 9.

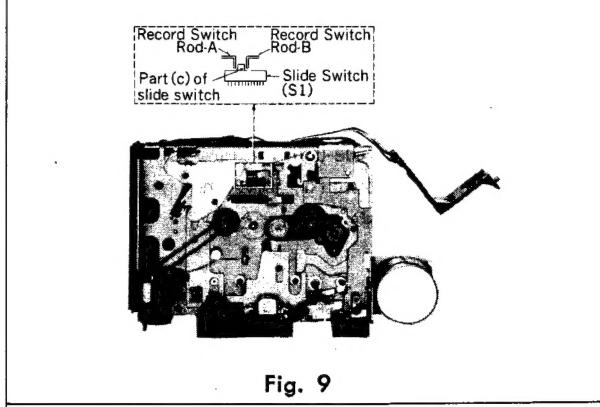


Fig. 9

3. Precautions when mounting the front panel assembly

- * Be sure to mount the front panel assembly with the playback button (M4) pressed so that the head base plate assembly (M14) is prevented from running on the pause lever assembly (M42) (shown in fig. 10).

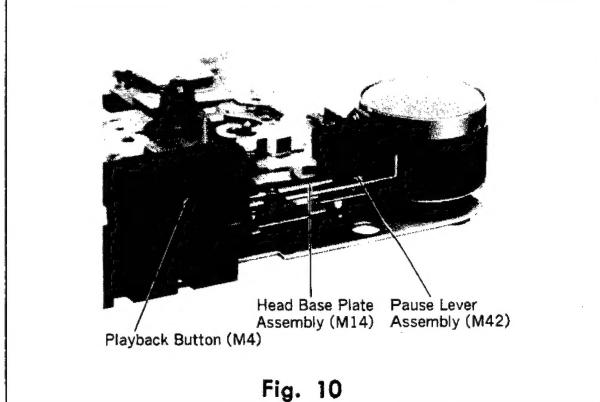


Fig. 10

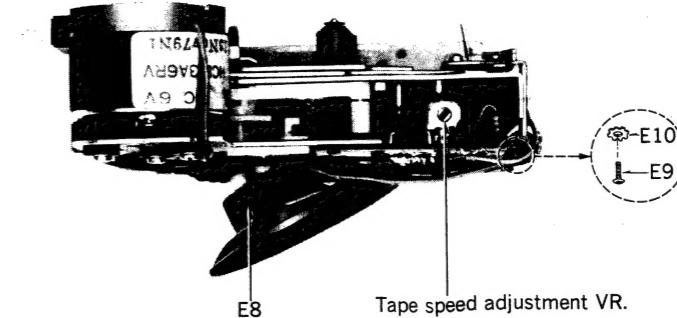
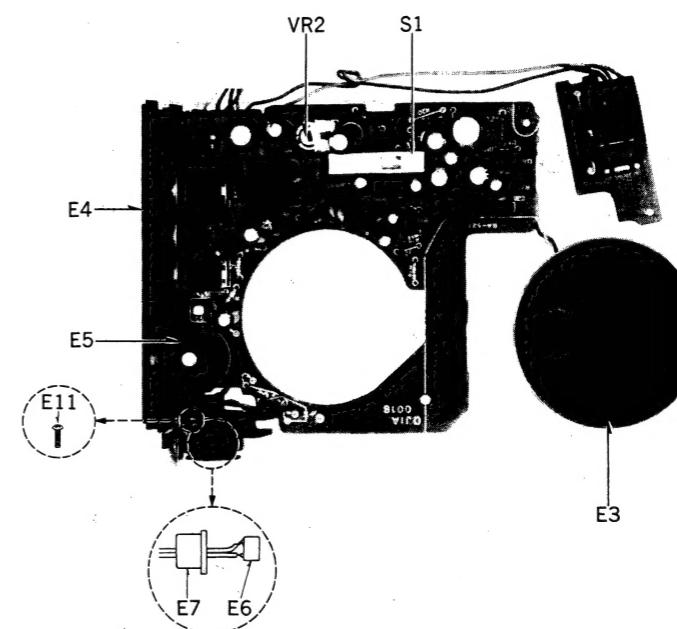
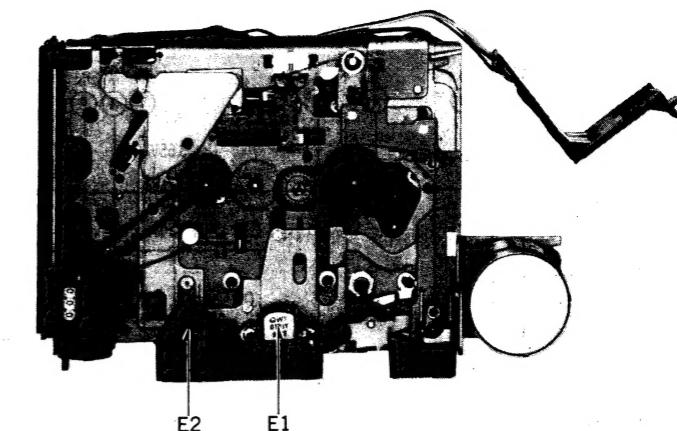
MEASUREMENT AND ADJUSTMENT METHODS

NOTES:

- Make sure heads are clean.
- Judgeable room temperature: $20 \pm 5^\circ\text{C}$ ($68 \pm 9^\circ\text{F}$).
- Make sure capstan and pressure roller are clean.
- Volume control: Maximum.

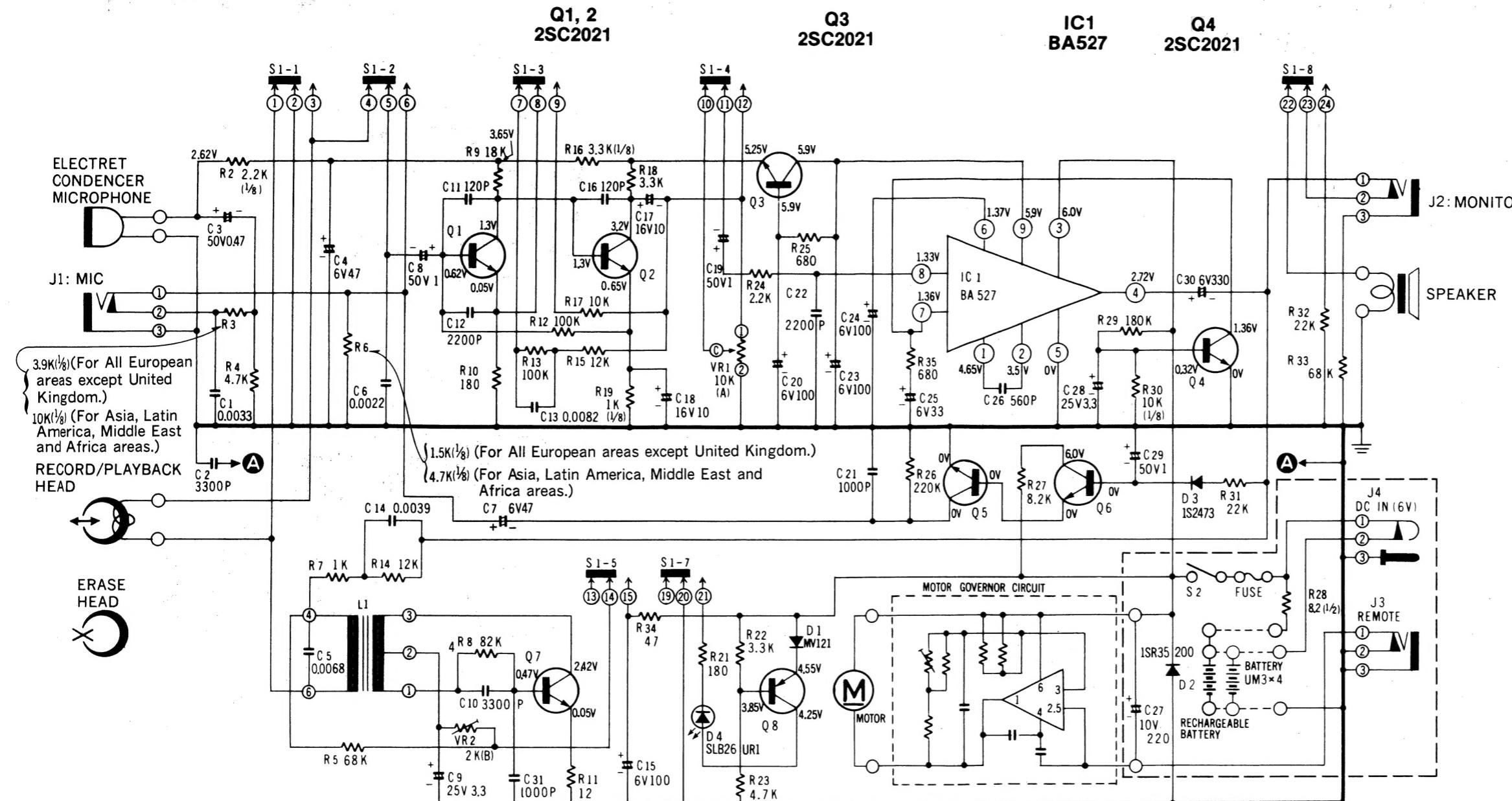
ITEM	MEASUREMENT & ADJUSTMENT
Head azimuth adjustment Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape (azimuth) ... QZZCFM * Resistor (10Ω)	<p>1. Test equipment connection is shown in fig. 11. 2. Playback azimuth tape (QZZCFM 8kHz). 3. Adjust record/playback head angle adjustment screw (A) in fig. 12 so that output level becomes maximum. 4. After adjustment lock head adjustment screw with lacquer.</p>
Tape speed accuracy adjustment Condition: * Playback mode Equipment: * Digital electronic counter or frequency counter * Test tape ... QZCWAT * Resistor (10Ω)	<p>Tape speed accuracy</p> <p>1. Test equipment connection is shown in fig. 13. 2. Playback test tape (QZCWAT 3,000Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 (\%)$ where, f = measured value 5. Take measurement at middle section of test tape.</p> <p>Standard value: $\pm 2.5\%$</p> <p>6. If measured value is not within standard, adjust tape speed adjustment VR (shown in electrical parts location), so that frequency becomes 3,000Hz.</p>
Bias current adjustment Condition: * Record mode Equipment: * VTVM * Resistor (10Ω)	<p>1. Disconnect the head lead wire (white) from the P.C.B. (shown in fig. 14). 2. Connect 10Ω resistor in series between the lead wire (white) which was removed and the point 3 of SW1-1 on the P.C.B. (shown in fig. 14). 3. Connect MIC terminal 1 or 2 to earth terminal 3 (shown in fig. 15). 4. Place the unit into the record mode. 5. Read voltage on VTVM and calculate bias current by the following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\Omega}$ </p> <p>Standard value: $0.65 \pm 0.1 \text{ mA}$</p> <p>6. If measured value is not within standard value, make adjustment by turning VR2.</p>

ELECTRICAL PARTS LOCATION

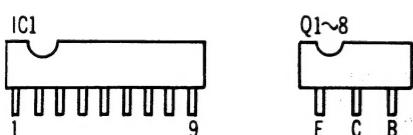


Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
ELECTRICAL PARTS					
E1	QWY0133Y	Record/Playback Head	E6	WM034Z	Built-in Microphone
E2	QWY2141	Erase Head	E7	QBG1679	Microphone Rubber
E3	EAS5P10SD	Speaker	E8	QBG1679	Speaker Rubber Cushion
E4	QJA0009	Jack Board	E9	XSN2+4	Screw $\oplus 2 \times 4$
E5	QGT1483	Volume Knob	E10	XWC2B	Washer
E11					
XTN2+6B					
Screw $\oplus 2 \times 6$					

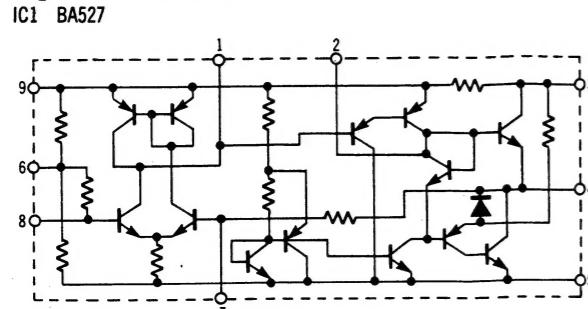
SCHEMATIC DIAGRAM



TERMINATIONS (SIDE VIEW)



EQUIVALENT CIRCUIT



NOTES:

- S1-1 ~ S1-8 Record/playback select switch (shown in playback position).
- S2 Power ON/OFF switch (shown in OFF position).
- VR1 Volume control.
- VR2 Bias current adjustment VR.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
 $K=1,000\Omega$.
- Capacity are in microfarads (μF) unless specified otherwise.
 $P=Pico-farads$.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position.
For measurement, use VTM.

*For All European areas except United Kingdom.

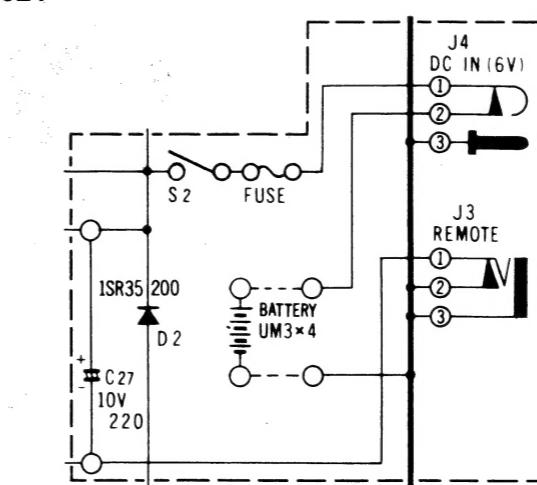
*For Asia, Latin America, Middle East and Africa areas.

NOTES: RESISTORS
 ERD...Carbon
 ECG...Ceramic
 ERO...Metal-oxide
 ECC...Ceramic
 ERX...Metal-film
 ERQ...Fuse type metallic
 ERC...Solid
 ERF...Cement

CAPACITORS
 ECG□...Ceramic
 ECK□...Ceramic
 ECC□...Ceramic
 ECF□...Ceramic
 ECQM...Polyester film
 ECQE...Polyester film
 ECQP...Polypropylene
 ECE□...Electrolytic
 ECE□N...Non polar electrolytic
 ECQS...Polystyrene
 ECS□...Tantalum

Ref. No.	Part No.	Ref. No.	Part No.
RESISTORS			
R2	ERD10TJ222	VR1	EVLEAAT12A14
R3	ERD10TJ392	VR2	EVNK4AA00B23
*For All European areas except United Kingdom.			
R4	ERD25FJ472	C1	ECQM1H32KZ
R5	ERD25TJ683	C2	ECKD1H32KB
R6	ERD10TJ152	C3	ECEA1HK47
*For All European areas except United Kingdom.			
R7	ERD25FJ102	C4	ECEA1AS470
R8	ERD25TJ823	C5	ECQM1H682KZ
R9	ERD25TJ183	C6	ECKD1H22KZ
R10	ERD25FJ181	C7	ECEA1AS470
R11	ERD25FJ120	C8	ECEA1HK010
*For All European areas except United Kingdom.			
R12, 13	ERD25TJ104	C9	ECEA2AS3R3
R14, 15	ERD25TJ123	C10	ECKD1H32KB
R16	ERD10TJ332	R7	ERD25FJ102
R17	ERD25FJ103	C11	ECKD1H121KB
R18	ERD25FJ332	C12	ECKD1H222PF
R19	ERD10TJ102	C13	ECQM1H82KZ
R21	ERD25FJ181	C14	ECEA1AS101
R22	ERD25FJ332	C15	ECKD1H561KB
R23	ERD25FJ472	C16	ECEA1AS221
R24	ERD25FJ222	C17, 18	ECEA1CK100
R25	ERD25FJ681	C19	ECEA1HK010
R26	ERD25TJ224	C20	ECEA1AS101
R27	ERD25FJ822	R17	ERD25FJ103
R28	ERD50FJBR2	C21	ECKD1H222PF
*For All European areas except United Kingdom.			
Q1, 2, 3, 4, 5, 6, 7	2SC2021	R18	ECEA1AS101
Q8	2SA786	R21	ERD25FJ181
DIODES			
D1	MV121	R22	ECEA1CS330
D2	SM112	R23	ECKD1H561KB
D3	MA161	R24	ECEA1EK3R3
D4	SLB26	R25	ECEA50M1
D35	ERD25FJ681	R26	ECEA1AS331
*For All European areas except United Kingdom.			
IC1	BA527	R27	ECKD1H102KB

Ref. No.	Part No.	Part Name & Description
L1	QLB0196K	COIL Bias Oscillation Coil
S1	QSS8206T	SWITCHES Slide Switch (Record/Playback)
S2	QSB0195	Leaf Switch (Power ON/OFF)

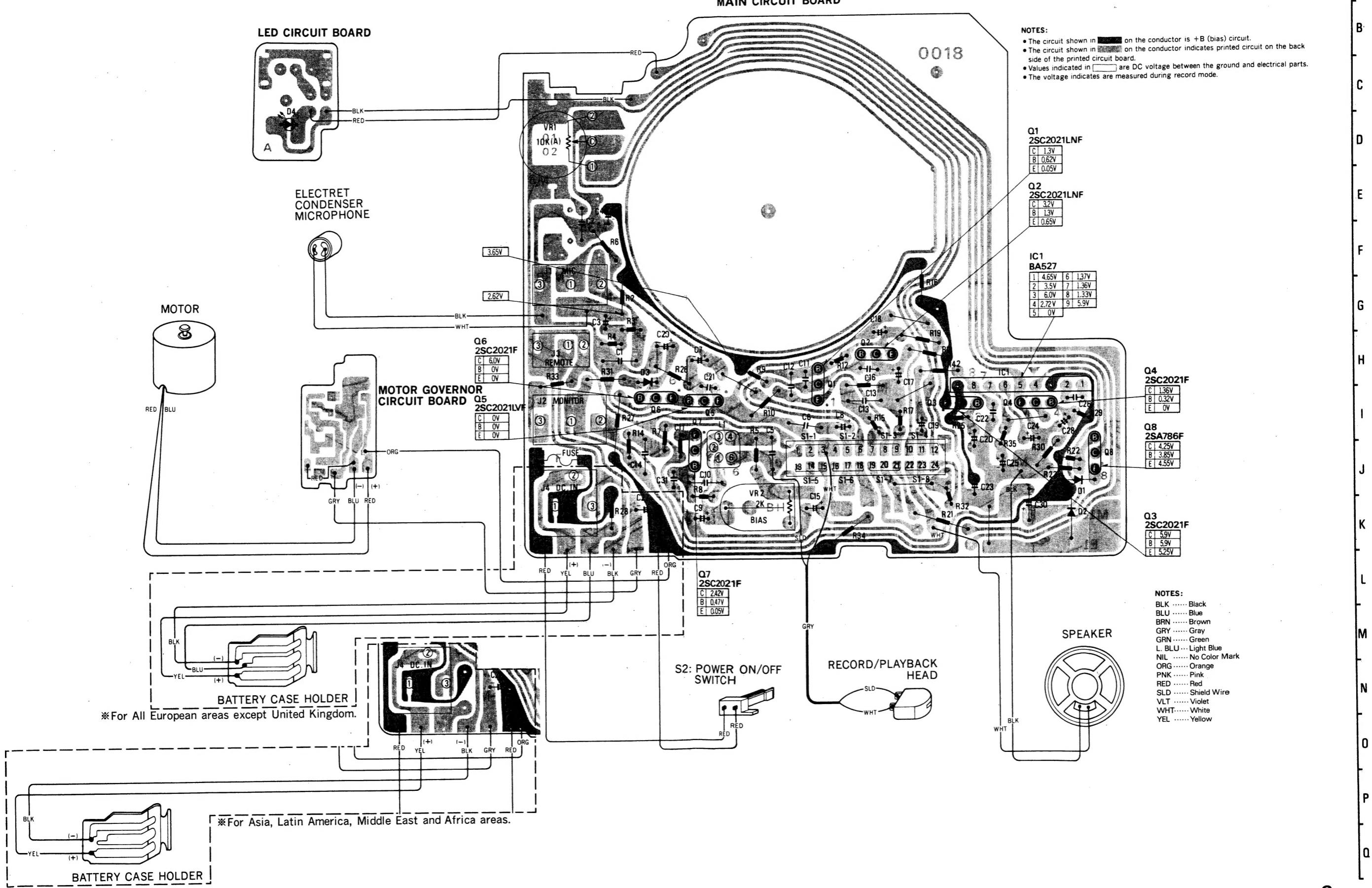


*For Asia, Latin America, Middle East and Africa areas.

SPECIFICATIONS

Bias oscillation frequency	35±5 kHz
Standard recording input level	1 kHz: -72±4 dB MIC: -
Overall frequency response	150Hz: -4±5 dB 1 kHz: 0 dB 6 kHz: -4±6 dB

WIRING CONNECTION DIAGRAM



A

EXPLODED VIEWS

B

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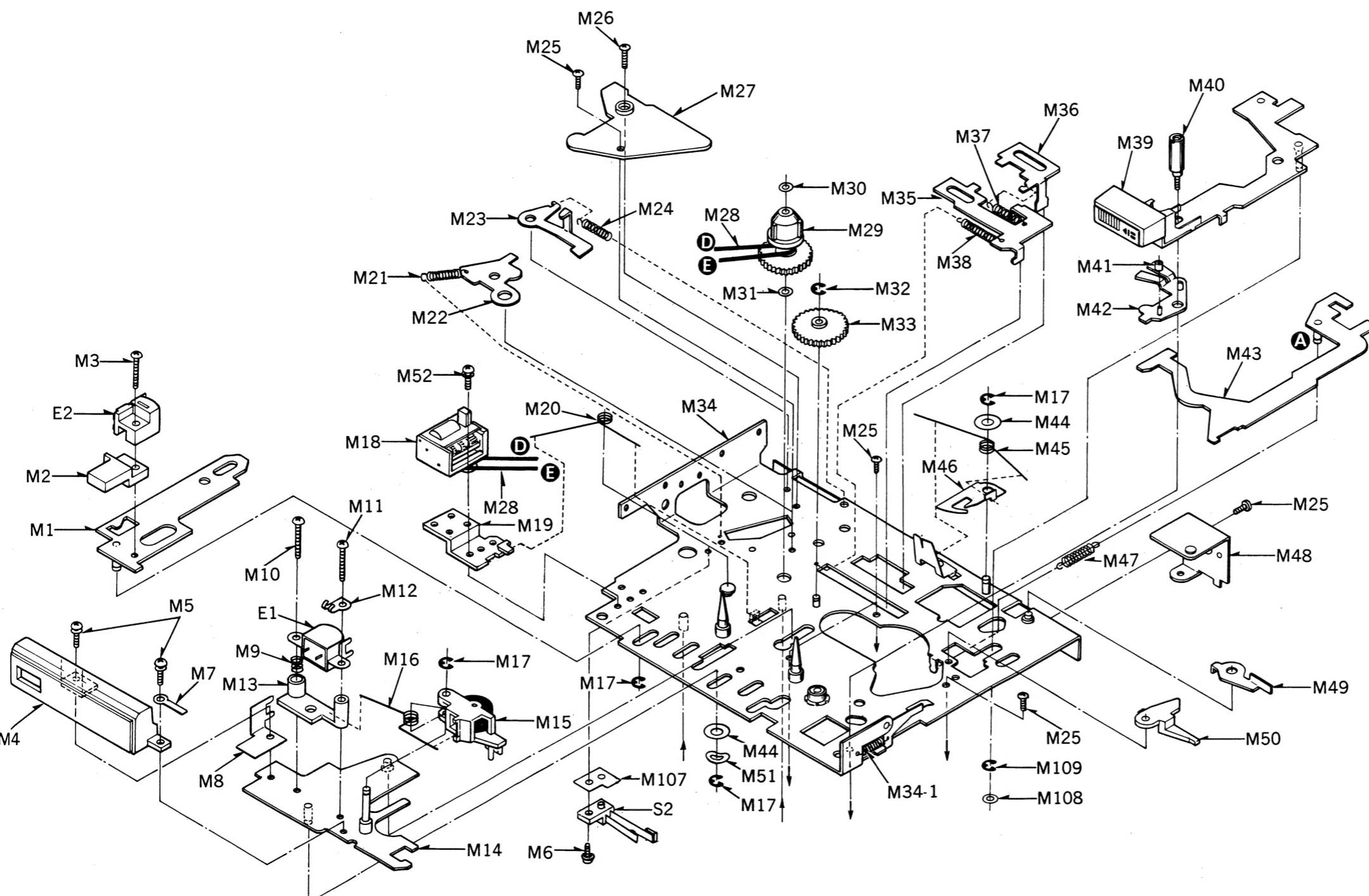
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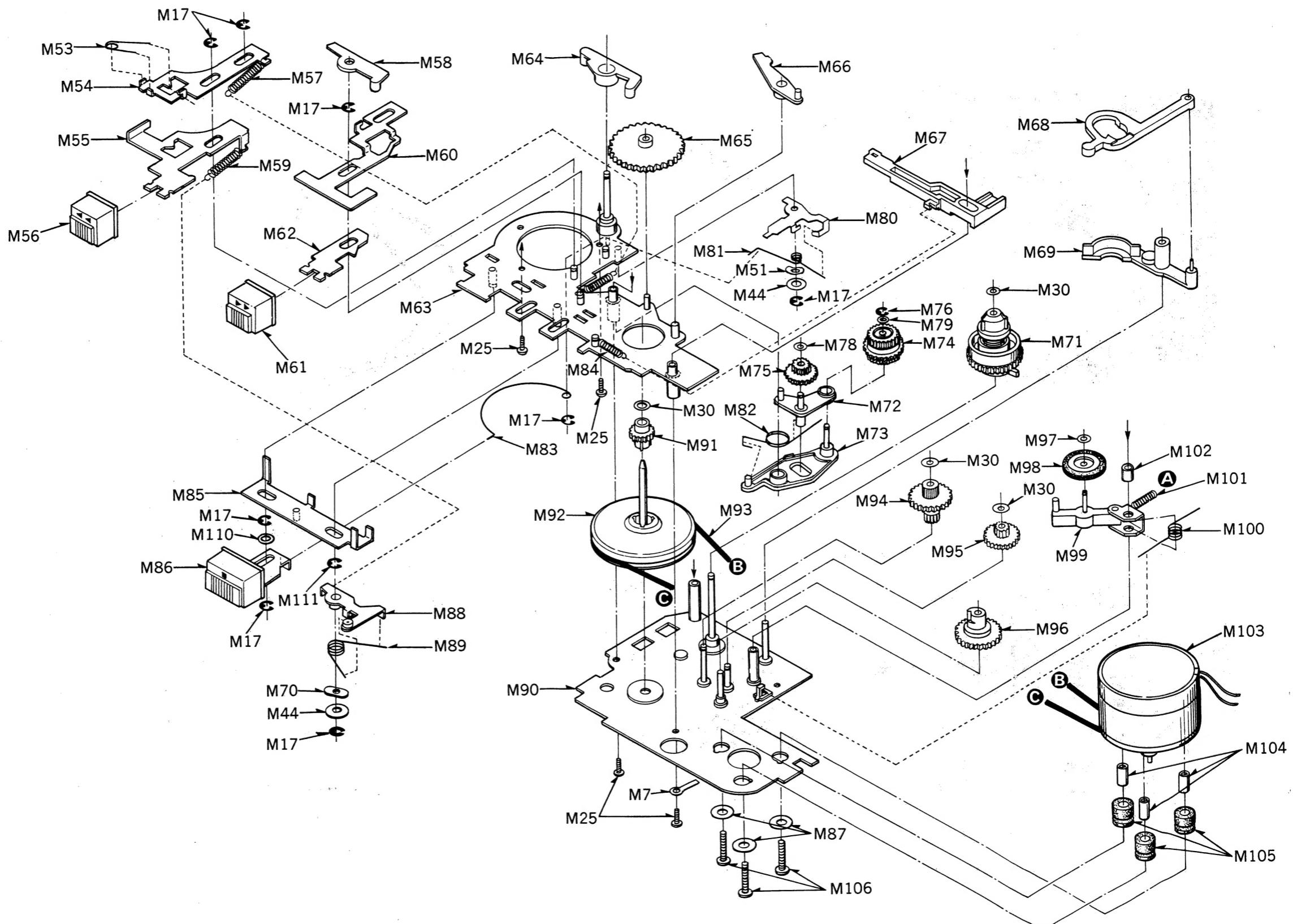


Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS		
M1	QXK2310	Erase Head Base Plate Assembly
M2	QGO1713	Record Button
M3	XSN2+10	Screw $\oplus 2 \times 10$
M4	QGO1712	Playback Button
M5	XSN2+5	Screw $\oplus 2 \times 5$
M6	XSN2+4	Screw $\oplus 2 \times 4$
M7	QTD1163	Wire Clamper
M8	QMG0098	Tape Guide
M9	QBCA0008	Head Spring
M10	XSN2+12	Head Adjustment Screw
M11	XSN2+10	Screw $\oplus 2 \times 10$
M12	QTD1287	Wire Clamper
M13	QMZ1247	Head Spacer
M14	QXK2307	Head Base Plate Assembly
M15	QXL1372	Pressure Roller Lever Assembly
M16	QBN1761	Pressure Roller Lever Spring
M17	XUC2FT	Stop Ring 2#
M18	QDC0129	Tape Counter
M19	QMZ1248	Counter Table
M20	QBN1767	Fast Forward/Rewind Lever Spring
M21	QBT1902	Record Rod Spring
M22	QML3623	Record Rod
M23	QML3622	Erase Safety Metal
M24	QBT1899	Erase Safety Metal Spring
M25	XQN16B3FZ	Screw $\oplus 1.6 \times 3$
M26	XQN16B5FZ	Screw $\oplus 1.6 \times 5$
M27	QMH2058	Rod Holder
M28	QDB0284	Counter Belt
M29	QXD0116	Supply Reel Table Assembly
M30	QBW2008	Snap Washer
M31	QBW2012	"
M32	XUC15FT	Stop Ring
M33	QDG1212	Gear (8)
M34	QXK2306	Upper Base Plate Assembly
M34-1	QBT1898	Eject Lever Spring
M35	QMR1857	Record Switch Rod-A
M36	QMR1858	Record Switch Rod-B
M37	QBT1904	Switch Rod Spring-A
M38	QBT1905	Switch Rod Spring-B
M39	QXR0617	Pause Rod Assembly
M40	QMP1776	Pause Rod Guide-B
M41	QMC0109	Collar
M42	QXL1371	Pause Lever Assembly
M43	QRX0620	Eject Rod Assembly
M44	XWE3A7	Washer
M45	QBN1768	Pause Lock Plate Spring
M46	QML3626	Pause Lock Plate
M47	QBT1897	Eject Rod Spring
M48	QXA1030	Circuit Board Retainer Assembly
M49	QML3625	Cassette Lid-up Lever
M50	QML3638	Auto Safety Lever
M51	QBP1519	Spring Washer
M52	XSN2+3	Screw $\oplus 2 \times 3$
M53	QBN1765	Head Base Plate Spring
M54	QMR1852	Playback Rod
M55	QMR1854	Rewind Rod
M56	QGO1715	Rewind Button
M57	QBT1900	Playback Rod Spring
M58	QML3635	Cue Lever-B
M59	QBT1906	Rewind Rod Spring
M60	QMR1855	Fast Forward/Rewind Rod
M61	QGO1714	Fast Forward Button
M62	QMR1853	Fast Forward Rod
M63	QXH0330	Button Holder Assembly
M64	QML3637	Switch Lever
M65	QDG1206	Gear (2)

26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

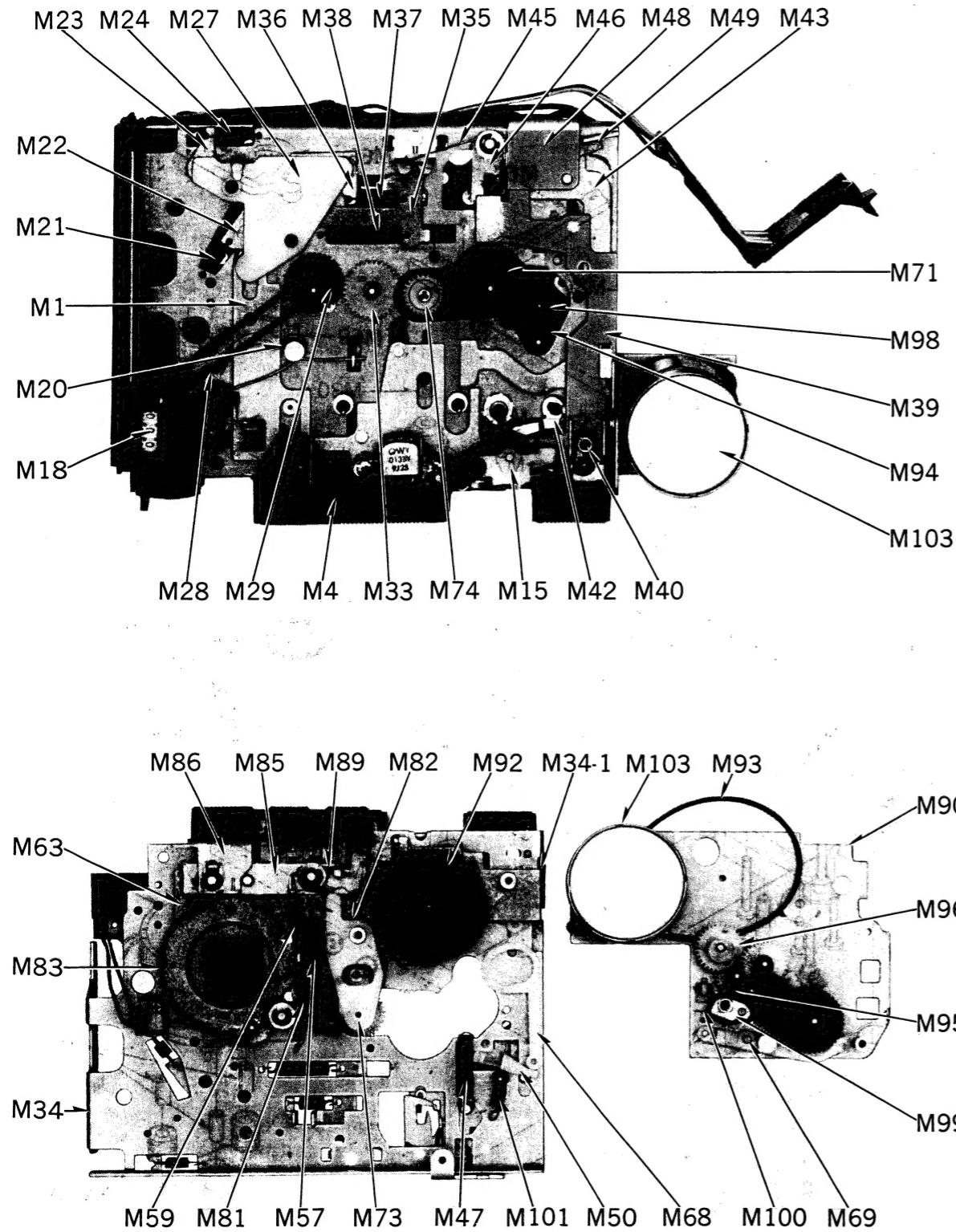
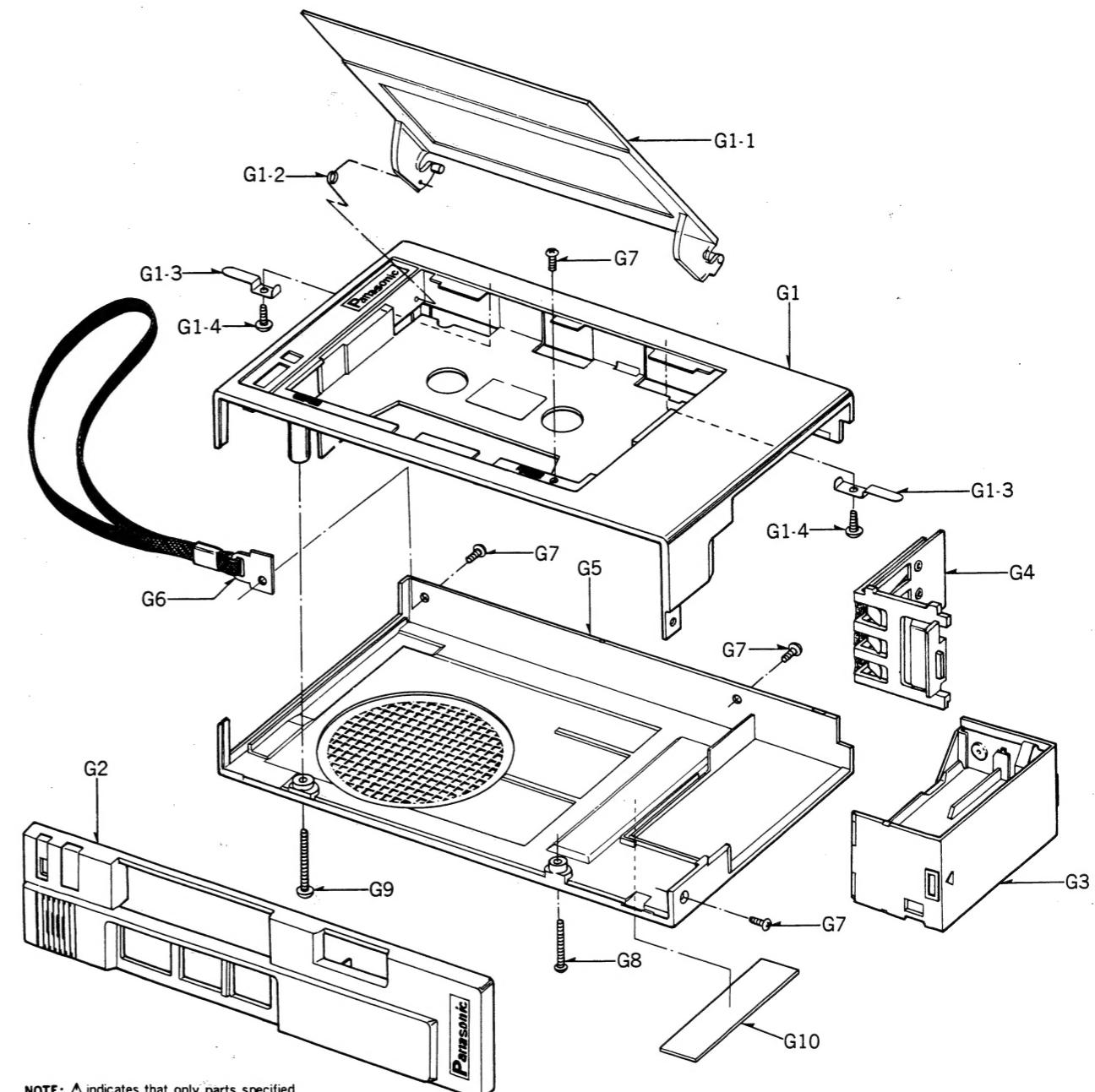
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Ref. No.	Part No.	Part Name & Description
M66	QML3634	Idler Driving Lever
M67	QMR1862	Lock Release Rod
M68	QML3632	Auto-Stop Detection Lever-B
M69	QXL1374	Auto-Stop Detection Lever-A
M71	QXD0115	Takeup Reel Table Assembly
M72	QXL1377	Fast Forward Lever-A Assembly
M73	QXL1378	Fast Forward Lever-B Assembly
M74	QXG1049	Fast Forward Gear Assembly
M75	QDG1210	Gear (6)
M76	XUC12FT	Stop Ring 1.2φ
M78	QBW2010	Washer
M79	QBJA3014	"
M80	QML3648	Gear Lever
M81	QBN1769	Gear Lever Spring
M82	QBN1764	Fast Forward Lever Spring
M83	QBN1766	Stop Button Spring
M84	GBT1901	Lock Plate Spring
M85	QXR0619	Lock Plate Assembly
M86	QXB0694	Stop Button Assembly
M87	XWE2A7	Washer
M88	QXL1375	Cue Lever-A Assembly
M89	QBN1763	Cue Lever Spring
M90	QXK2313	Lower Base Plate Assembly
M91	QDG1205	Gear (1)
M92	QXF0166	Flywheel Assembly
M93	QDB0283	Flywheel Belt
M94	QDG1207	Gear (3)
M95	QDG1208	Gear (4)
M96	QDG1209	Gear (5)
M97	QBW2030	Washer
M98	QXI0114	Takeup Idler Assembly
M99	QXL1387	Idler Lever Assembly
M100	QBN1762	Idler Spring
M101	GBT1903	Pause Lock Spring
M102	QMC0106	Collar
M103	HCE3A6RV	Motor
M104	QMC0107	Motor Collar
M105	QBG1678	Motor Rubber
M106	XSN2+10	Screw $\oplus 2 \times 10$
M107	QBK1266	Insulator Sheet
M108	QBW2042	Washer
M109	XUC15FT	Stop Ring
M110	QBW2016	Washer
M111	XUC25FT	Stop Ring



SPECIFICATIONS

Pressure of pressure roller	350^{+100}_{-50} g
Takeup tension * Use cassette torque meter ... QZZSRKCT	40 ± 10 g·cm
Wow and flutter: JIS * Use test tape ... QZZCWAT	Less than 0.55% (RMS)

MECHANICAL PARTS LOCATION**CABINET PARTS**

NOTE: Δ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
CABINET PARTS								
G1	QYMA0107H	Main Case Assembly *For All European areas except United Kingdom. QYMA0111H	G8	XSN2+20BN	Screw $\oplus 2 \times 20$	P1	QPN0099	Inside Carton
G1-1	QKFA2007H	Cassette Lid *For All European areas except United Kingdom.	G9	XTN26+26B	Tapping Screw $\oplus 2.6 \times 26$	*For All European areas except United Kingdom. (Non-Included AC Adaptor Type)	QPN0100	"
G1-2	QBP7004	Cassette Lid Spring	G10	QGS0050	Main Name Plate	QPN0095	"	
ACCESSORIES								
A1	RP667XE	AC Adaptor *For All European areas except United Kingdom. (Included AC Adaptor Type)	A1	XEH15AB	Earphone	P2	XZB16X25A02	Poly Bag
A2	QKA0034	Carring Case *For All European areas except United Kingdom.	A2	QKA0034	Carrying Case	P3	QPA0048	Cushion
A3	QFTC07L003NZ	Demonstration Tape *For All European areas except United Kingdom.	A3	QFTC07L003NZ	Demonstration Tape	P4	QPA0051	"
A4	QFTC07L003NZ	Instruction Book *For All European areas except United Kingdom. (Non-Included AC Adaptor Type)	A4	QFTC07L003NZ	Instruction Book	P5	QPA0050	"
A5	QQT2783	"	A5	QQT2784	"	P6	QPA0051	"
G3	QYDA0001	Battery Case Assembly *For All European areas except United Kingdom.	G3	QYDA0001	Battery Case Assembly	P7	QPA0050	"
G4	QYQA0013	Battery Case Holder *For All European areas except United Kingdom.	G4	QYQA0013	Battery Case Holder	P8	QPA0051	"
G5	QKMA0041H	Bottom Case Assembly *For All European areas except United Kingdom.	G5	QKMA0041H	Bottom Case Assembly	P9	QPA0050	"
G6	QYH0090	Hand Strap	G6	QYH0090	Hand Strap	P10	QPA0051	"
G7	XSS2+6BV	Screw $\oplus 2 \times 6$	G7	XSS2+6BV	Screw $\oplus 2 \times 6$	P11	QPA0050	"
						P12	QPA0051	"
						P13	QPA0050	"
						P14	QPA0050	"
						P15	QPA0050	"
						P16	QPA0050	"
						P17	QPA0050	"
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